

**ENVIRONMENTAL COMPLIANCE APPROVAL**

NUMBER 6650-BTVSH8  
 Issue Date: December 4, 2020

Ambria (Otonabee) Limited  
 400 Creditstone Rd, No. 9  
 Vaughan, Ontario  
 L4K 3Z3

Site Location: Ambria (Otonabee) - Matchett Line  
 Matchett Line Lot 20 & 21, Concession 16 Geographic  
 Township of Otonabee  
 Township of Otonabee-South Monaghan  
 County of Peterborough, Ontario  
 K9J 6Y3

*You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:*

establishment, usage and operation of new non-municipal sewage works, for the treatment of sanitary sewage from the proposed Riverbend Estates condominium development via a Sewage Treatment Plant and the disposal of Final Effluent via a subsurface disposal facility as follows:

**Classification of Sewage Treatment Plant:** Secondary

**Details of Service Area:**

- **Type of Occupancy:** Permanent Residential
- **Type and Number of Units:** 130 residential units (65 units for Phase 1 and 65 units for Phase 2)

**Design Capacity of Sewage Treatment Plant:**

Design Capacity with All Treatment Trains in Operation	Upon Completion of Construction of Phase 1 Proposed Works	Upon Completion of Construction of All Proposed Works (Phases 1 & 2)
Rated Capacity	65 m <sup>3</sup> /d	130 m <sup>3</sup> /d

## Influent and Imported Sewage

Receiving Location	Types
In Collection System	Sanitary Sewage
At Sewage Treatment Plant	None

## Proposed Works:

### PHASE 1 WORKS

#### Membrane Bioreactor (MBR) Wastewater Treatment Plant, Phase 1

##### Preliminary Treatment System

- Screening
  - two (2) 0.5 millimetre automatic screens, with a Peak Instantaneous Flow Rate of 6.3 litres per second;

##### Influent Flow Measurement and Sampling Point

- flow measurement device downstream of the sewage pumping station;
- Sampling of Influent downstream of the screens;

##### Equalization Tanks

- four (4) in-ground precast concrete equalization tanks, each having a flow equalization volume of approximately 65 cubic metres hydraulically connected with pump-out in only one of the tanks, complete with two (2) air mixing blowers (one duty, one common standby with aeration), each rated at 128.5 normal cubic metres per hour at 51.7 kilopascals (7.5 psig) and two (2) submersible grinder pumps (one duty, one standby) each rated at 174 litres per minute (46 US gallons per minute) at 8.4 metres (27.5 feet of water column), discharging the effluent to the pre-anoxic tank described below;

##### Secondary Treatment System

- one (1) in-ground pre-anoxic tank, having a volume of 35.0 cubic metres and equipped with eight (8) eductor mixing assemblies rated at 510 litres per minute (135 US gallons per minute) at 10.7 metres (35 feet of water column) and two (2) submersible mixing pumps (one duty, one standby) each rated at 510 litres per minute (135 US gallons per minute) at 10.7 metres

(35 feet of water column), discharging the effluent to the aerobic tank described below;

- one (1) in-ground aerobic tank, having a volume of 50.0 cubic metres and equipped with one (1) fine bubble air diffuser grid, two (2) air mixing blowers (one duty, one standby) rated at 241 normal cubic metres per hour at 34.5 kilopascals (5 psig), one (1) waste activated sludge submersible pump rated at 95 litres per minute (25 US gallons per minute) at 6.1 metres (20 feet of water column), and two (2) submersible pumps (one duty, one standby) each rated at 360 litres per minute (95 US gallons per minute) at 6.1 metres (20 feet of water column), discharging the mixed liquor back to the pre-anoxic tank described above;
- one (1) in-ground post-anoxic tank, having a volume of 15.0 cubic metres and equipped with four (4) eductor mixing assemblies rated at 265 litres per minute (70 US gallons per minute) at 10.7 metres (35 feet of water column) and two (2) mixing pumps (one duty, one standby) each rated at 265 litres per minute (70 US gallons per minute) at 10.7 metres (35 feet of water column), discharging through two (2) submersible pumps (one duty, one common standby) each rated at 227 litres per minute (60 US gallons per minute) at 7.6 metres (25 feet of water column), discharging the effluent to the membrane tank described below;
- one (1) membrane tank, having a volume of 8.2 cubic metres and equipped with one (1) submerged ultrafiltration membrane module rated at 6.8 cubic metres per hour, two (2) air scouring blower (one duty, one standby) rated at 108 normal cubic metres per hour at 27.1 kilopascals, one (1) manual sludge wasting valve, and two (2) permeate extraction pumps (one duty, one standby) each rated at a peak flow rate of 6.8 cubic metres per hour (30 US gallons per minute), discharging the effluent to the UV disinfection system described below;

## **Supplementary Treatment System**

### **Phosphorus Removal**

- one (1) alum dosing system consisting of one (1) alum storage tank with secondary containment and one (1) metering pump (one duty, shared shelf standby) rated at 0.61 litres per hour, dosing alum into the aerobic tank;

### **External Carbon Supplementation**

- one (1) carbon source dosing system consisting of one (1) carbon material storage tank with secondary containment and one (1) metering pump (one duty, shared shelf standby) rated at 0.61 litres per hour, dosing the external carbon material into the post anoxic tank;

## **Disinfection System**

- one (1) UV disinfection system consisting of one (1) UV Pure Hallett 500 W or Equivalent Equipment (one duty with shelf replacement bulb), capable of handling a Peak Hourly Flow Rate of 9.1 cubic metres per hour (151 litres or 40 US gallons per minute);

### **Final Effluent Flow Measurement and Sampling Point**

- flow measurement device at the outlet of the membrane tank, upstream of the UV disinfection system;
- automatic composite sampler downstream of the UV disinfection system;

### **Sludge Management System**

- one (1) in-ground precast concrete sludge holding tank, having a volume of 65 cubic metres and equipped with two (2) air mixing blowers (two duty) each rated at 111 normal cubic metres per hour at 31.8 kilopascals and one (1) decant pump rated at 75 litres per minute (20 US gallons per minute), discharging supernatant to the Preliminary Treatment System, with resulting sludge to be hauled off-site for disposal at an appropriately-approved receiving facility;

### **Final Effluent Disposal Facilities, Phase 1**

- two (2) fully raised Type A dispersal beds, each bed consisting of a stone layer having an area of 2,184 square metres, a thickness of 250 millimetres and protected with a permeable geo-textile fabric, complete with 28 runs of 37 metre long 75 millimetre diameter perforated distribution pipes (for a total length of 1,036 metres per bed) installed 2.0 metres apart, centre to centre, overlying a sand layer having an area of 3,816 square metres, a thickness of 300 millimetres and a sand percolation time of 6 to 10 minutes per centimetre, complete with a sand mantle extending a minimum of 15 metres beyond the outermost edge of the stone layer in the direction of flow;

## **PHASE 2 WORKS**

### **Membrane Bioreactor (MBR) Wastewater Treatment Plant, Phase 2**

#### **Secondary Treatment System**

- one (1) additional duty submersible pump in the post-anoxic tank, rated at 227 litres per minute (60 US gallons per minute) at 7.6 metres (25 feet of water column), discharging the effluent to the membrane tank described below;
- one (1) additional membrane tank, having a volume of 8.2 cubic metres and equipped with one (1) submerged ultrafiltration membrane module rated at 6.8 cubic metres per hour, two (2) air scouring blower (one duty, one standby) rated at 108 normal cubic metres per hour at 27.1 kilopascals, one (1) manual sludge wasting valve, and two (2) permeate extraction pumps (one duty, one standby) each rated at a peak flow rate of 6.8 cubic metres per hour (30 US gallons per minute), discharging the effluent to the UV disinfection system described below;

## Disinfection System

- one (1) additional UV disinfection system consisting of one (1) UV Pure Hallett 500 W or Equivalent Equipment (one duty with shelf replacement bulb), capable of handling a Peak Hourly Flow Rate of 9.1 cubic metres per hour (151 litres or 40 US gallons per minute);

## Final Effluent Disposal Facilities, Phase 2

- two (2) additional fully raised Type A dispersal beds, each bed consisting of a stone layer having an area of 2,184 square metres, a thickness of 250 millimetres and protected with a permeable geo-textile fabric, complete with 28 runs of 37 metre long 75 millimetre diameter perforated distribution pipes (for a total length of 1,036 metres per bed) installed 2.0 metres apart, centre to centre, overlying a sand layer having an area of 3,816 square metres, a thickness of 300 millimetres and a sand percolation time of 6 to 10 minutes per centimetre, complete with a sand mantle extending a minimum of 15 metres beyond the outermost edge of the stone layer in the direction of flow;

including all other mechanical system, electrical system, instrumentation and control system, standby power system, piping, pumps, valves and appurtenances essential for the proper, safe and reliable operation of the Works in accordance with this Approval, in the context of process performance and general principles of wastewater engineering only;

all in accordance with the submitted supporting documents listed in Schedule A.

*For the purpose of this environmental compliance approval, the following definitions apply:*

1. "Annual Average Daily Influent Flow" means the cumulative total sewage flow of Influent to the Sewage Treatment Plant during a calendar year divided by the number of days during which sewage was flowing to the Sewage Treatment Plant that year;
2. "Annual Average Effluent Concentration" is the mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during a calendar year, calculated and reported as per the methodology specified in Schedule F;
3. "Approval" means this entire Environmental Compliance Approval and any Schedules attached to it;
4. "BOD5" (also known as TBOD5) means five day biochemical oxygen demand measured in an unfiltered sample and includes carbonaceous and nitrogenous oxygen demands;
5. "CBOD5" means five day carbonaceous (nitrification inhibited) biochemical oxygen demand measured in an unfiltered sample;
6. "Director" means a person appointed by the Minister pursuant to section 5 of the EPA for the purposes of Part II.1 of the EPA;
7. "District Manager" means the District Manager of the appropriate local district office of the Ministry

where the Works is geographically located;

8. "*E. coli*" refers to coliform bacteria that possess the enzyme beta-glucuronidase and are capable of cleaving a fluorogenic or chromogenic substrate with the corresponding release of a fluorogen or chromogen, that produces fluorescence under long wavelength (366 nm) UV light, or color development, respectively. Enumeration methods include tube, membrane filter, or multi-well procedures. Depending on the method selected, incubation temperatures include 35.5 + 0.5 °C or 44.5 + 0.2 °C (to enumerate thermotolerant species). Depending on the procedure used, data are reported as either colony forming units (CFU) per 100 mL (for membrane filtration methods) or as most probable number (MPN) per 100 mL (for tube or multi-well methods);
9. "EPA" means the *Environmental Protection Act*, R.S.O. 1990, c.E.19;
10. "Equivalent Equipment" means alternate piece(s) of equipment that meets the design requirements and performance specifications of the piece(s) of equipment to be substituted;
11. "Existing Works" means those portions of the Works included in the Approval that have been constructed previously;
12. "Final Effluent" means effluent that is discharged to the environment through the approved effluent disposal facilities that are required to meet the compliance limits stipulated in the Approval for the Sewage Treatment Plant at the Final Effluent sampling point(s);
13. "Grab Sample" means an individual sample of at least 1000 millilitres collected in an appropriate container at a randomly selected time over a period of time not exceeding 15 minutes;
14. "Influent" means flows to the Sewage Treatment Plant from the collection system but excluding process return flows;
15. "Licensed Engineering Practitioner" means a person who holds a licence, limited licence or temporary licence under the PEO;
16. "Limited Operational Flexibility" (LOF) means the conditions that the Owner shall follow in order to undertake any modification that is pre-authorized as part of this Approval;
17. "Ministry" means the ministry of the government of Ontario responsible for the EPA and OWRA and includes all officials, employees or other persons acting on its behalf;
18. "Monthly Average Effluent Concentration" is the mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during a calendar month, calculated and reported as per the methodology specified in Schedule F;
19. "Normal Operating Condition" means the condition when all unit process(es), excluding Preliminary Treatment System, in a treatment train is operating within its design capacity;

20. "Operating Authority" means the Owner, person or the entity that is authorized by the Owner for the management, operation, maintenance, or alteration of the Works in accordance with this Approval;
21. "Owner" means any person that is responsible for the establishment of the Works being approved by this Approval, and includes Owner's Legal Name and its successors and assigns;
22. "OWRA" means the *Ontario Water Resources Act* , R.S.O. 1990, c. O.40;
23. "Peak Hourly Flow Rate" (also referred to as maximum hourly flow or maximum hour flow) means the largest volume of flow to be received during a one-hour period for which the sewage treatment process unit or equipment is designed to handle;
24. "Peak Instantaneous Flow Rate" means the instantaneous maximum flow rate as measured by a metering device for which the sewage treatment process unit or equipment is designed to handle;
25. "PEA" means *Professional Engineers Act*, R.S.O. 1990, c. P.28;
26. "Preliminary Treatment System" means all facilities in the Sewage Treatment Plant associated with screening and grit removal;
27. "Proposed Works" means those portions of the Works included in the Approval that are under construction or to be constructed;
28. "Rated Capacity" means the Annual Average Daily Influent Flow for which the Sewage Treatment Plant is designed to handle;
29. "Registered Installer" means a person who is registered under the OBC to construct, install, repair, service, clean or empty on-site sewage systems;
30. "Secondary Treatment System" means all facilities in the Sewage Treatment Plant associated with biological treatment, secondary sedimentation and phosphorus removal unit processes;
31. "Sewage Treatment Plant" means all the facilities related to sewage treatment within the sewage treatment plant site excluding the Final Effluent disposal facilities;
32. "Single Sample Result" means the test result of a parameter in the effluent discharged on any day, as measured by a probe, analyzer or in a composite or grab sample, as required;
33. "Works" means the approved sewage works, and includes Proposed Works and modifications made under Limited Operational Flexibility.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

## **TERMS AND CONDITIONS**

### **1. GENERAL PROVISIONS**

1. The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Works is notified of this Approval and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.
2. Except as otherwise provided by these conditions, the Owner shall design, build, install, operate and maintain the Works in accordance with the description given in this Approval, and the application for approval of the Works.
3. Where there is a conflict between a provision of any document referred to in this Approval and the conditions of this Approval, the conditions in this Approval shall take precedence.
4. The conditions of this Approval are severable. If any condition of this Approval, or the application of any requirement of this Approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

### **2. CHANGE OF OWNER AND OPERATING AUTHORITY**

1. The Owner shall notify the District Manager and the Director, in writing, of any of the following changes within thirty (30) days of the change occurring:
  - a. change of address of Owner;
  - b. change of Owner, including address of new owner;
  - c. change of partners where the Owner is or at any time becomes a partnership, and a copy of the most recent declaration filed under the *Business Names Act, R.S.O. 1990, c. B.17* , as amended, shall be included in the notification;
  - d. change of name of the corporation where the Owner is or at any time becomes a corporation, and a copy of the most current information filed under the *Corporations Information Act, R.S.O. 1990, c. C.39* , as amended, shall be included in the notification.
2. The Owner shall notify the District Manager, in writing, of any of the following changes within thirty (30) days of the change occurring:



- a. change of address of Operating Authority;
  - b. change of Operating Authority, including address of new Operating Authority.
3. In the event of any change in ownership of the Works, the Owner shall notify the succeeding owner in writing, of the existence of this Approval, and forward a copy of the notice to the District Manager.
  4. The Owner shall ensure that all communications made pursuant to this condition refer to the environmental compliance approval number.

### **3. CONSTRUCTION OF PROPOSED WORKS**

1. All Proposed Works in this Approval shall be constructed and installed and must commence operation within **five (5) years** of issuance of this Approval, after which time the Approval ceases to apply in respect of any portions of the Works not in operation. In the event that the construction, installation and/or operation of any portion of the Proposed Works is anticipated to be delayed beyond the time period stipulated, the Owner shall submit to the Director an application to amend the Approval to extend this time period, at least six (6) months prior to the end of the period. The amendment application shall include the reason(s) for the delay and whether there is any design change(s).
2. Upon completion of construction of the Proposed Works, the Owner shall prepare and submit a written statement to the District Manager, certified by a Licensed Engineering Practitioner, that the Proposed Works is constructed in accordance with this Approval.
3. One (1) week prior to the commencement of the operation of the Proposed Works, the Owner shall notify the District Manager (in writing) of the pending start-up date.
4. Within one (1) year of completion of construction of the Proposed Works, a set of record drawings of the Works shall be prepared or updated. These drawings shall be kept up to date through revisions undertaken from time to time and a copy shall be readily accessible for reference at the Works.
5. The Owner shall ensure that the treatment technologies are installed in accordance with the manufacturer's installation manual.
6. The Owner shall ensure that the Works are constructed such that minimum horizontal clearance distances as specified in the OBC are satisfied.
7. The Owner shall ensure that an imported soil that is required for construction of any subsurface disposal bed as per this Approval is tested and verified by the Licensed Engineering Practitioner or Registered Installer for the percolation time (T) prior to delivering to the site location and the written records are kept at the site.

### **4. DESIGN OBJECTIVES**

1. The Owner shall design and undertake everything practicable to operate the Sewage Treatment Plant in

accordance with the following objectives:

- a. Final Effluent parameters design objectives listed in the table(s) included in Schedule B of this Approval.
- b. Annual Average Daily Influent Flow is within the Rated Capacity of the Sewage Treatment Plant.

## **5. COMPLIANCE LIMITS**

1. The Owner shall operate and maintain the Sewage Treatment Plant such that compliance limits for the Final Effluent parameters listed in the table(s) included in Schedule C of this Approval are met.
2. The Owner shall operate and maintain the Sewage Treatment Plant such that the Final Effluent is disinfected continuously year-round.

## **6. OPERATION AND MAINTENANCE**

1. The Owner shall ensure that, at all times, the Works and the related equipment and appurtenances used to achieve compliance with this Approval are properly operated and maintained. Proper operation and maintenance shall include effective performance, adequate staffing and training, including training in all procedures and other requirements of this Approval and the OWRA and relevant regulations made under the OWRA, process controls and alarms and the use of process chemicals and other substances used in the Works.
2. The Owner shall prepare an operations manual for the Works within six (6) months of completion of construction of the Proposed Works, that includes, but not necessarily limited to, the following information:
  - a. operating procedures for the Works under Normal Operating Conditions;
  - b. inspection programs, including frequency of inspection, for the Works and the methods or tests employed to detect when maintenance is necessary;
  - c. repair and maintenance programs, including the frequency of repair and maintenance for the Works;
  - d. procedures for the inspection and calibration of monitoring equipment;
  - e. operating procedures for the Works to handle situations outside Normal Operating Conditions and emergency situations such as a structural, mechanical or electrical failure, or an unforeseen flow condition;
  - f. a spill prevention and contingency plan, consisting of procedures and contingency plans, including notification to the District Manager, to reduce the risk of spills of pollutants and prevent, eliminate or ameliorate any adverse effects that result or may result from spills of pollutants;

- g. procedures for receiving, responding and recording public complaints, including recording any follow-up actions taken.
3. The Owner shall maintain the operations manual up-to-date and make the manual readily accessible for reference at the Works and available for inspection by Ministry staff upon request.
4. The Owner shall employ for the overall operation of the Works a person who possesses the level of training and experience sufficient to allow safe and environmentally sound operation of the Works.
5. The Owner shall maintain a logbook to record the results of all inspections, repair and maintenance undertaken, calibrations, monitoring and spill response or contingency measures undertaken and shall make the logbook available for inspection by Ministry staff. The logbook shall include the following:
  - a. the name of the operator making the entry; and
  - b. the date and results of each inspection, repair, maintenance, calibration, monitoring, spill response and contingency measure.
6. The Owner, shall, upon the construction, prepare and make available for inspection by Ministry staff, a maintenance agreement with the manufacturer and/or Operating Authority for the treatment process/technology. The maintenance agreement must be retained at the site and kept current for the operational life of the Works.
7. The Owner shall ensure that grass-cutting is maintained regularly over the subsurface disposal bed(s), and that adequate steps are taken to ensure that the area of the underground works is protected from vehicle traffic.
8. The Owner shall visually inspect the general area where sewage works are located for break-out once every month during the calendar year. In the event a break-out is observed from a subsurface disposal bed, the Owner shall ensure that the sewage discharge to the bed be discontinued and the incident be immediately reported verbally to the District Manager, followed by a written report within one (1) week. The Owner shall ensure that during the time remedial actions are taking place the sewage generated at the site shall not be allowed to discharge to a surface water body or to the environment, and safely collected and disposed of through a licensed waste hauler to an approved waste disposal site.
9. The Owner shall ensure that the collected excess sludge from the Works is hauled off-site and disposed of at an approved facility using the services of a licensed hauler.
10. For a period no later than twelve (12) months of the issuance of this Approval, in the event that raw sewage collected in the approved Works is required to be hauled off-site for disposal during the start-up of the operation of the Works in the Phase 1 development, the Owner shall retain a licensed waste hauler that possesses a valid service agreement with an approved municipal sewage treatment plant (or plants) for the disposal of hauled sewage generated at this Site.
11. Documentation related to Paragraph 10 shall be submitted to the District Manager prior to the first

shipment of raw sewage from the Works.

## 7. MONITORING AND RECORDING

1. The Owner shall, upon commencement of operation of the Works, carry out a scheduled monitoring program of collecting samples at the required sampling points, at the frequency specified or higher, by means of the specified sample type and analyzed for each parameter listed in the tables under the monitoring program included in Schedule D of this Approval and record all results, as follows:
  - a. all samples and measurements are to be taken at a time and in a location characteristic of the quality and quantity of the sewage stream over the time period being monitored.
  - b. definitions and preparation requirements for each sample type are included in document referenced in Paragraph 3.b.
  - c. definitions for frequency:
    - i. Biweekly means once every two weeks;
    - ii. Monthly means once every month;
    - iii. Annually means once every year;
  - d. a schedule of the day of the week/month for the scheduled sampling shall be created. The sampling schedule shall be revised and updated every year through rotation of the day of the week/month for the scheduled sampling program, except when the actual scheduled monitoring frequency is three (3) or more times per week.
2. The Owner shall prepare a groundwater monitoring program for the Site Location and submit it to the District Manager for their review and approval prior to the commencement of the operation of the Works and implementation of the groundwater monitoring program.
3. The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following documents and all analysis shall be conducted by a laboratory accredited to the ISO/IEC:17025 standard or as directed by the District Manager:
  - a. the Ministry's Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only), as amended;
  - b. the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater Version 2.0" (January 2016), PIBS 2724e02, as amended;
  - c. the publication "Standard Methods for the Examination of Water and Wastewater", as amended; and
  - d. for any parameters not mentioned in the documents referenced in Paragraphs 3.a, 3.b and 3.c, the

written approval of the District Manager shall be obtained prior to sampling.

4. The Owner shall monitor and record the flow rate and daily quantity using flow measuring devices or other methods of measurement as approved below calibrated to an accuracy within plus or minus 15 per cent (+/- 15%) of the actual flow rate of the following:
  - a. Influent flow to the Sewage Treatment Plant by continuous flow measuring devices and instrumentations;
  - b. Final Effluent discharged from the Sewage Treatment Plant by continuous flow measuring devices and instrumentations.
5. The Owner shall retain for a minimum of five (5) years from the date of their creation, all records and information related to or resulting from the monitoring activities required by this Approval.

## **8. LIMITED OPERATIONAL FLEXIBILITY**

1. The Owner may make pre-authorized modifications to the Sewage Treatment Plant in Works in accordance with the document "Limited Operational Flexibility - Protocol for Pre-Authorized Modifications to Municipal Sewage Works" (Schedule E), as amended, subject to the following:
  - a. the modifications will not involve the addition of any new treatment process or the removal of an existing treatment process, including chemical systems, from the liquid or solids treatment trains as originally designed and approved.
  - b. the scope and technical aspects of the modifications are in line with those delineated in Schedule E and conform with the Ministry's publication "Design Guidelines for Sewage Works 2008", as amended, Ministry's regulations, policies, guidelines, and industry engineering standards;
  - c. the modifications shall not negatively impact on the performance of any process or equipment in the Works or result in deterioration in the Final Effluent quality;
  - d. where the pre-authorized modification requires notification, a "Notice of Modifications to Sewage Works" (Schedule E), as amended shall be completed with declarations from a Licensed Engineering Practitioner and the Owner and retained on-site prior to the scheduled implementation date. All supporting information including technical memorandum, engineering plans and specifications, as applicable and appropriate to support the declarations that the modifications conform with LOF shall remain on-site for future inspection.
2. The following modifications are not pre-authorized under Limited Operational Flexibility:
  - a. Modifications that involve addition or extension of process structures, tankages or channels;
  - b. Modifications that involve relocation of the Final Effluent outfall or any other discharge location or

that may require reassessment of the impact to the receiver or environment;

- c. Modifications that involve addition of or change in technology of a treatment process or that may involve reassessment of the treatment train process design;
- d. Modifications that require changes to be made to the emergency response, spill prevention and contingency plan; or
- e. Modifications that are required pursuant to an order issued by the Ministry.

## 9. REPORTING

1. The Owner shall report to the District Manager orally as soon as possible any non-compliance with the compliance limits set in this Approval, and in writing within seven (7) days of non-compliance.
2. The Owner shall, within fifteen (15) days of occurrence of a spill within the meaning of Part X of the EPA, submit a full written report of the occurrence to the District Manager describing the cause and discovery of the spill, clean-up and recovery measures taken, preventative measures to be taken and schedule of implementation, in addition to fulfilling the requirements under the EPA and O. Reg. 675/98 "Classification and Exemption of Spills and Reporting of Discharges".
3. The Owner shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to Ministry staff.
4. The Owner shall prepare performance reports on a calendar year basis and submit to the District Manager by March 31 of the calendar year following the period being reported upon. The reports shall contain, but shall not be limited to, the following information pertaining to the reporting period:
  - a. a summary and interpretation of all Influent monitoring data, and a review of the historical trend of the sewage characteristics and flow rates;
  - b. a summary and interpretation of all flow data and results achieved in not exceeding the maximum daily flow discharged into the subsurface disposal system;
  - c. a summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, and a comparison to the design objectives and compliance limits in this Approval, including an overview of the success and adequacy of the Works;
  - d. a summary of any deviation from the monitoring schedule and reasons for the current reporting year and a schedule for the next reporting year;
  - e. a summary and interpretation of groundwater monitoring data including shallow groundwater flow direction, interpretation of analytical results and comparison with the effluent design objective of 2.5 milligrams per litre for Nitrate Nitrogen concentration in accordance with the Reasonable Use

Policy;

- f. a summary of all operating issues encountered and corrective actions taken;
- g. a summary of all normal and emergency repairs and maintenance activities carried out on any major structure, equipment, apparatus or mechanism forming part of the Works;
- h. a summary of any effluent quality assurance or control measures undertaken;
- i. a summary of the calibration and maintenance carried out on all Influent and Final Effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in this Approval or recommended by the manufacturer;
- j. a summary of efforts made to achieve the design objectives in this Approval, including an assessment of the issues and recommendations for pro-active actions when any of the design objectives is not achieved more than 50% of the time in a year or there is an increasing trend in deterioration of Final Effluent quality;
- k. a tabulation of the volume of sludge generated, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed;
- l. a summary of any complaints received and any steps taken to address the complaints;
- m. a summary of all situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events;
- n. a summary of all Notice of Modifications to Sewage Works completed under Paragraph 1.d. of Condition 8, including a report on status of implementation of all modification;
- o. any changes or updates to the schedule for the completion of construction and commissioning operation of major process(es) / equipment groups in the Proposed Works;
- p. any other information the District Manager requires from time to time.

## **10. RESPONSIBILITY AGREEMENT**

1. The Owner shall enter into a duly signed Responsibility Agreement with the Corporation of the Township of Otonabee-South Monaghan prior to the construction of the Works approved herein.
2. Prior to the operation of the Works approved herein, the Owner shall register the Certificate of Requirement signed by the Director, in the appropriate Land Registry Office.
3. The Owner shall submit a copy of the registered Certificate of Requirement to the District Manager.
4. Any dealings with the property are prohibited in any way without first giving a copy of this Approval

and the Responsibility Agreement to each person acquiring an interest in the property.

5. In the event that a municipality or other public authority with the power to provide sewage service to the users of the Works, determines to do so directly, pursuant to the Responsibility Agreement or otherwise, or is required, by the Medical Officer of Health or the Director, to do so, the Owner shall, without compensation, transfer to the Corporation of the Township of Otonabee-South Monaghan, such parts of the Works and any related interests in the land required for the operation of the Works as are determined by the municipality.

## **11. CERTIFICATE OF REQUIREMENT**

1. Pursuant to Section 197 of the EPA, no person having an interest in the Property, shall deal with the Property in any way without first giving a copy of this Approval to each person acquiring an interest in the Property as a result of the dealing.
2. The Owner shall:
  - i. within sixty (60) days of the date of the issuance of this Approval, submit to the Director for their review, two copies of a completed Certificate of Requirement and a registerable description of the Property; and
  - ii. within ten (10) calendar days of receiving the Certificate of Requirement authorized by the Director, register the Certificate of Requirement in the appropriate Land Registry Office on title to the Property and submit to the Director the duplicate registered copy immediately following registration.
3. For the purposes of this condition, Property shall mean the property located at Part Lot 20 & 21, Concession 16, Part of Block B and all of Block C, Geographic Township of Otonabee.



*The reasons for the imposition of these terms and conditions are as follows:*

1. Condition 1 regarding general provisions is imposed to ensure that the Works are constructed and operated in the manner in which they were described and upon which approval was granted.
2. Condition 2 regarding change of Owner and Operating Authority is included to ensure that the Ministry records are kept accurate and current with respect to ownership and Operating Authority of the Works and to ensure that subsequent owners of the Works are made aware of the Approval and continue to operate the Works in compliance with it.
3. Condition 3 regarding construction of Proposed Works is included to ensure that the Works are constructed in a timely manner so that standards applicable at the time of Approval of the Works are still applicable at the time of construction to ensure the ongoing protection of the environment, and that prior to the commencement of construction of the portion of the Works that are approved in principle only, the Director will have the opportunity to review detailed design drawings, specifications and an engineer's report containing detailed design calculations for that portion of the Works, to determine capability to comply with the Ministry's requirements stipulated in the terms and conditions of the Approval, and also ensure that the Works are constructed in accordance with the Approval and that record drawings of the Works "as constructed" are updated and maintained for future references.
4. Condition 4 regarding design objectives is imposed to establish non-enforceable design objectives to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occurs.
5. Condition 5 regarding compliance limits is imposed to ensure that the Final Effluent discharged from the Works to the environment meets the Ministry's effluent quality requirements.
6. Condition 6 regarding operation and maintenance is included to require that the Works be properly operated, maintained, funded, staffed and equipped such that the environment is protected and deterioration, loss, injury or damage to any person or property is prevented. As well, the inclusion of a comprehensive operations manual governing all significant areas of operation, maintenance and repair is prepared, implemented and kept up-to-date by the Owner. Such a manual is an integral part of the operation of the Works. Its compilation and use should assist the Owner in staff training, in proper plant operation and in identifying and planning for contingencies during possible abnormal conditions. The manual will also act as a benchmark for Ministry staff when reviewing the Owner's operation of the Works.
7. Condition 7 regarding monitoring and recording is included to enable the Owner to evaluate and demonstrate the performance of the Works, on a continual basis, so that the Works are properly operated and maintained at a level which is consistent with the design objectives and compliance limits.
8. Condition 8 regarding Limited Operational Flexibility is included to ensure that the Works are constructed, maintained and operated in accordance with the Approval, and that any pre-approved

modification will not negatively impact on the performance of the Works.

9. Condition 9 regarding reporting is included to provide a performance record for future references, to ensure that the Ministry is made aware of problems as they arise, and to provide a compliance record for this Approval.
10. Condition 10 is included to ensure that there is a Responsibility Agreement in place between the Owner and the Municipality prior to construction of the Works so that, in the event that the Owner is unable to continue to provide sewage service, the Municipality may be able to assume ownership and operation of the Works.
11. Condition 11 is included in order to require the Owner to give notice of this Approval to potential future owners of the property before the property is dealt with.

## **Schedule A**

1. Application for Environmental Compliance Approval for Municipal and Private Sewage Works, dated February 4, 2020 and received on August 24, 2020, submitted by Ambria (Otonabee) Limited, including the design brief, final plans, specifications and all supporting documentation and correspondence submitted in support of this application.

## Schedule B

### Final Effluent Design Objectives

<b>Final Effluent Parameter</b>	<b>Averaging Calculator</b>	<b>Objective</b>
CBOD5	Monthly Average Effluent Concentration	7 mg/L
Total Suspended Solids	Monthly Average Effluent Concentration	7 mg/L
Total Phosphorus	Annual Average Effluent Concentration	0.5 mg/L
Nitrate Nitrogen	Monthly Average Effluent Concentration	2.5 mg/L
<i>E. coli</i>	Single Sample Result	Non-detectable
pH	Single Sample Result	6.5 - 8.5 inclusive

## Schedule C

### Final Effluent Compliance Limits

Final Effluent Parameter	Averaging Calculator	Limit (maximum unless otherwise indicated)
CBOD5	Monthly Average Effluent Concentration	10 mg/L
Total Suspended Solids	Monthly Average Effluent Concentration	10 mg/L
Total Phosphorus	Annual Average Effluent Concentration	1 mg/L
Total Inorganic Nitrogen (Ammonia Nitrogen, Nitrate Nitrogen and Nitrite Nitrogen)	Monthly Average Effluent Concentration	5 mg/L
<i>E. coli</i>	Single Sample Result	100 CFU/100 mL*
pH	Single Sample Result	between 6.0 - 9.5 inclusive

\*If the MPN method is utilized for *E. coli* analysis the limit shall be 100 MPN/100 mL.

## Schedule D

### Monitoring Program

#### Influent - Influent sampling point

Parameters	Sample Type	Minimum Frequency
BOD5	Grab	Quarterly
Total Suspended Solids	Grab	Quarterly
Total Phosphorus	Grab	Quarterly
Total Kjeldahl Nitrogen	Grab	Quarterly

#### Final Effluent - Final Effluent sampling point

Parameters	Sample Type	Minimum Frequency
CBOD5	24 hour composite	Biweekly
Total Suspended Solids	24 hour composite	Biweekly
Total Phosphorus	24 hour composite	Monthly
Total Ammonia Nitrogen	24 hour composite	Biweekly
Total Kjeldahl Nitrogen	24 hour composite	Monthly
Nitrate as Nitrogen	24 hour composite	Biweekly
Nitrite as Nitrogen	24 hour composite	Biweekly
<i>E. coli</i>	Grab	Monthly
pH*	Grab/Probe/Analyzer	Monthly
Temperature*	Grab/Probe/Analyzer	Monthly

\*pH and temperature of the Final Effluent shall be determined in the field at the time of sampling for Total Ammonia Nitrogen.

**Sludge/Biosolids – holding tank/truck loading bay**

<b>Parameters</b>	<b>Sample Type</b>	<b>Minimum Frequency</b>
Total Solids	Grab	Annually
Total Phosphorus	Grab	Annually
Total Ammonia Nitrogen	Grab	Annually
Nitrate as Nitrogen	Grab	Annually
Metal Scan - Arsenic - Cadmium - Cobalt - Chromium - Copper - Lead - Mercury - Molybdenum - Nickel - Potassium - Selenium - Zinc	Grab	Annually

## Schedule E

### Limited Operational Flexibility

#### Protocol for Pre-Authorized Modifications to Municipal Sewage Works

##### 1. General

1. Pre-authorized modifications are permitted only where Limited Operational Flexibility has already been granted in the Approval and only permitted to be made at the pumping stations and sewage treatment plant in the Works, subject to the conditions of the Approval.
2. Where there is a conflict between the types and scope of pre-authorized modifications listed in this document, and the Approval where Limited Operational Flexibility has been granted, the Approval shall take precedence.
3. The Owner shall consult the District Manager on any proposed modifications that may fall within the scope and intention of the Limited Operational Flexibility but is not listed explicitly or included as an example in this document.
4. The Owner shall ensure that any pre-authorized modifications will not:
  - a. adversely affect the hydraulic profile of the Sewage Treatment Plant or the performance of any upstream or downstream processes, both in terms of hydraulics and treatment performance;
  - b. result in new Overflow or Bypass locations, or any potential increase in frequency or quantity of Overflow(s) or Bypass(es).
  - c. result in a reduction in the required Peak Flow Rate of the treatment process or equipment as originally designed.

##### 2. Modifications that do not require pre-authorization:

1. Sewage works that are exempt from Ministry approval requirements;
2. Modifications to the electrical system, instrumentation and control system.

##### 3. Pre-authorized modifications that do not require preparation of “Notice of Modification to Sewage Works”

1. Normal or emergency maintenance activities, such as repairs, renovations, refurbishments and replacements with Equivalent Equipment, or other improvements to an existing approved piece of equipment of a treatment process do not require pre-authorization. Examples of these activities are:



- a. Repairing a piece of equipment and putting it back into operation, including replacement of minor components such as belts, gear boxes, seals, bearings;
  - b. Repairing a piece of equipment by replacing a major component of the equipment such as motor, with the same make and model or another with the same or very close power rating but the capacity of the pump or blower will still be essentially the same as originally designed and approved;
  - c. Replacing the entire piece of equipment with Equivalent Equipment.
2. Improvements to equipment efficiency or treatment process control do not require pre-authorization. Examples of these activities are:
- a. Adding variable frequency drive to pumps;
  - b. Adding on-line analyzer, dissolved oxygen probe, ORP probe, flow measurement or other process control device.

#### **4. Pre-Authorized Modifications that require preparation of “Notice of Modification to Sewage Works”**

##### 1. Pumping Stations

- a. Replacement, realignment of existing sewers including manholes, valves, gates, weirs and associated appurtenances provided that the modifications will not add new influent source(s) or result in an increase in flow from existing sources as originally approved.
- b. Extension or partition of wetwell to increase retention time for emergency response and improve station maintenance and pump operation;
- c. Replacement or installation of inlet screens to the wetwell;
- d. Replacement or installation of flowmeters, construction of station bypass;
- e. Replacement, reconfiguration and modifications to pump suction and discharge pipings including valve, gates, motors, variable frequency drives and associated appurtenances to maintain firm pumping capacity or modulate the pump rate provided that the modifications will not result in a reduction in the firm pumping capacity or discharge head or an increase in the peak pumping rate of the pumping station as originally designed;
- f. Replacement, realignment of existing forcemain(s) including valves, gates, and associated appurtenances provided that the modifications will not reduce the flow capacity or increase the total dynamic head and transient in the forcemain.

##### 2. Sewage Treatment Plant

1. Sewers and appurtenances
  - a. Replacement, realignment of existing sewers (including pipes and channels), including manholes, valves, gates, weirs and associated appurtenances within the a sewage treatment plant, provided that the modifications will not add new influent source(s) or result in an increase in flow from existing sources as originally approved and that the modifications will remove hydraulic bottlenecks or improve the conveyance of sewage into and through the Works.
2. Flow Distribution Chambers/Splitters
  - a. Replacement or modification of existing flow distribution chamber/splitters or construction of new flow distribution chamber/splitters, including replacements or installation of sluice gates, weirs, valves for distribution of flows to the downstream process trains, provided that the modifications will not result in a change in flow distribution ratio to the downstream process trains as originally designed.
3. Imported Sewage Receiving Facility
  - a. Replacement or relocation of loading bays, connect/disconnect hook-up systems and unloading/transferring systems;
  - b. Replacement or relocation of screens, grit removal units and compactors;
  - c. Replacement or relocation of pumps, such as dosing pumps and transfer pumps, valves, piping and appurtenances;
  - d. Replacement or relocation of storage tanks/chambers and spill containment systems;
  - e. Replacement, relocation or installation of flow measurement and sampling equipment.
4. Preliminary Treatment System
  - a. Replacement of existing screens and grit removal units with equipment of the same or higher process performance technology, including where necessary replacement or upgrading of existing screenings dewatering washing compactors, hydrocyclones, grit classifiers, grit pumps, air blowers conveyor system, disposal bins and other ancillary equipment to the screening and grit removal processes.
  - b. Replacement of channel aeration systems, including air blowers, air supply main, air headers, air laterals, air distribution grids and diffusers.

## 5. Primary Treatment System

- a. Replacement of existing sludge removal mechanism, including sludge chamber;
- b. Replacement of scum removal mechanism, including scum chamber;
- c. Replacement of primary sludge pumps, scum pumps, provided that:the modifications will not result in a reduction in the firm pumping capacity or discharge head that the primary sludge pump(s) and scum pump(s) are originally designed to handle.

## 6. Secondary Treatment System

### 1. Biological Treatment

- a. Conversion of complete mix aeration tank to plug-flow multi-pass aeration tank, including modifications to internal structural configuration;
- b. Addition of inlet gates in multi-pass aeration tank for step-feed operation mode;
- c. Partitioning of an anoxic/flip zone in the inlet of the aeration tank, including installation of submersible mixer(s);
- d. Replacement of aeration system including air blowers, air supply main, air headers, air laterals, air distribution grids and diffusers, provided that the modifications will not result in a reduction in the firm capacity or discharge pressure that the blowers are originally designed to supply or in the net oxygen transferred to the wastewater required for biological treatment as originally required.

### 2. Secondary Sedimentation

- a. Replacement of sludge removal mechanism, including sludge chamber;
- b. Replacement of scum removal mechanism, including scum chamber;
- c. Replacement of return activated sludge pump(s), waste activated sludge pump(s), scum pump(s), provided that the modifications will not result in a reduction in the firm pumping capacity or discharge head that the activated sludge pump(s) and scum pump(s) are originally designed to handle.

## 7. Post-Secondary Treatment System

- a. Replacement of filtration system with equipment of the same filtration technology, including feed pumps, backwash pumps, filter reject pumps, filtrate extract pumps, holding tanks associated with the pumping system, provided that the modifications will not result in a reduction in the capacity of

the filtration system as originally designed.

## 8. Disinfection System

### 1. UV Irradiation

- a. Replacement of UV irradiation system, provided that the modifications will not result in a reduction in the design capacity of the disinfection system or the radiation level as originally designed.

### 2. Chlorination/Dechlorination and Ozonation Systems

- a. Extension and reconfiguration of contact tank to increase retention time for effective disinfection and reduce dead zones and minimize short-circuiting;
- b. Replacement of chemical storage tanks, provided that the tanks are provided with effective spill containment.

## 9. Supplementary Treatment Systems

### 1. Chemical systems

- a. Replacement or relocation of chemical storage tanks for existing chemical systems only, provided that the tanks are sited with effective spill containment;
- b. Replacement of chemical dosing pumps provided that the modifications will not result in a reduction in the firm capacity that the dosing pumps are originally designed to handle.
- c. Relocation and addition of chemical dosing point(s) including chemical feed pipes and valves and controls, to improve phosphorus removal efficiency;
- d. Use of an alternate chemical provided that it is a non-proprietary product and is a commonly used alternative to the chemical approved in the Works, provided that the chemical storage tanks, chemical dosing pumps, feed pipes and controls are also upgraded, as necessary.

## 10. Sludge Management System

### 1. Sludge Holding and Thickening

- a. Replacement of sludge holding tanks, sludge handling pumps, such as transfer pumps, feed pumps, recirculation pumps, provided that modifications will not result in reduction in the solids storage or handling capacities;

### 2. Sludge Digestion

- a. Replacement of digesters, sludge handling pumps, such as transfer pumps, feed pumps, recirculation pumps, provided that modifications will not result in reduction in the solids storage or handling capacities;
- b. replacement of sludge digester covers.

### 3. Sludge Dewatering and Disposal

- a. Replacement of sludge dewatering equipment, sludge handling pumps, such as transfer pumps, feed pumps, cake pumps, loading pumps, provided that modifications will not result in reduction in solids storage or handling capacities.

### 11. Standby Power System

1. Replacement or installation of standby power system, including feed from alternate power grid, emergency power generator, fuel supply and storage systems, provided that the existing standby power generation capacity is not reduced.

### 12. Lagoons

- a. installing baffles in lagoon provided that the operating capacity of the lagoon system is not reduced;
- b. raise top elevation of lagoon berms to increase free-board;
- c. replace interconnecting pipes and chambers between cells, provided that the process design operating sequence is not changed;
- d. replace mechanical aerators, or replace mechanical aerators with diffused aeration system provided that the mixing and aeration capacity are not reduced;
- e. removal of accumulated sludge and disposal to an approved location offsite.

### 3. Final Effluent Disposal Facilities

- a. Replacement or realignment of the Final Effluent channel, sewer or forcemain, including manholes, valves and appurtenances from the end of the treatment train to the discharge outfall section, provided that the sewer conveys only effluent discharged from the Sewage Treatment Plant and that the replacement or re-aligned sewer has similar dimensions and performance criteria and is in the same or approximately the same location and that the hydraulic capacity will not be reduced.

This page contains an image of the form entitled "Notice of Modification to Sewage Works". A digital copy can be obtained from the District Manager.



Ontario

Ministry of the Environment, Conservation and Parks

**Notice of Modification to Sewage Works**

RETAIN COPY OF COMPLETED FORM AS PART OF THE ECA ON-SITE PRIOR TO THE SCHEDULED IMPLEMENTATION DATE.

Part 1 – Environmental Compliance Approval (ECA) with Limited Operational Flexibility		
<i>(Insert the ECA's owner, number and issuance date and notice number, which should start with "01" and consecutive numbers thereafter)</i>		
ECA Number	Issuance Date (mm/dd/yy)	Notice number (if applicable)
ECA Owner		Municipality

Part 2: Description of the modifications as part of the Limited Operational Flexibility
<i>(Attach a detailed description of the sewage works)</i>
<p>Description shall include:</p> <ol style="list-style-type: none"> <li>1. A detail description of the modifications and/or operations to the sewage works (e.g. sewage work component, location, size, equipment type/model, material, process name, etc.)</li> <li>2. Confirmation that the anticipated environmental effects are negligible.</li> <li>3. List of updated versions of, or amendments to, all relevant technical documents that are affected by the modifications as applicable, i.e. submission of documentation is not required, but the listing of updated documents is (design brief, drawings, emergency plan, etc.)</li> </ol>

Part 3 – Declaration by Professional Engineer	
<p>I hereby declare that I have verified the scope and technical aspects of this modification and confirm that the design:</p> <ol style="list-style-type: none"> <li>1. Has been prepared or reviewed by a Professional Engineer who is licensed to practice in the Province of Ontario;</li> <li>2. Has been designed in accordance with the Limited Operational Flexibility as described in the ECA;</li> <li>3. Has been designed consistent with Ministry's Design Guidelines, adhering to engineering standards, industry's best management practices, and demonstrating ongoing compliance with s.53 of the Ontario Water Resources Act; and other appropriate regulations.</li> </ol> <p>I hereby declare that to the best of my knowledge, information and belief the information contained in this form is complete and accurate</p>	
Name (Print)	PEO License Number
Signature	Date (mm/dd/yy)
Name of Employer	

Part 4 – Declaration by Owner	
<p>I hereby declare that:</p> <ol style="list-style-type: none"> <li>1. I am authorized by the Owner to complete this Declaration;</li> <li>2. The Owner consents to the modification; and</li> <li>3. This modifications to the sewage works are proposed in accordance with the Limited Operational Flexibility as described in the ECA.</li> <li>4. The Owner has fulfilled all applicable requirements of the <i>Environmental Assessment Act</i>.</li> </ol> <p>I hereby declare that to the best of my knowledge, information and belief the information contained in this form is complete and accurate</p>	
Name of Owner Representative (Print)	Owner representative's title (Print)
Owner Representative's Signature	Date (mm/dd/yy)

## Schedule F

### Methodology for Calculating and Reporting Monthly Average Effluent Concentration, Annual Average Effluent Concentration and Monthly Geometric Mean Density

#### 1. Monthly Average Effluent Concentration

- Step 1: Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during a calendar month and proceed as follows depending on the result of the calculation:
- a. If the arithmetic mean does not exceed the compliance limit for the contaminant, then report and use this arithmetic mean as the Monthly Average Effluent Concentration for this parameter where applicable in this Approval;
  - b. If the arithmetic mean exceeds the compliance limit for the contaminant and there was no Bypass Event during the calendar month, then report and use this arithmetic mean as the Monthly Average Effluent Concentration for this parameter where applicable in this Approval;
  - c. If the arithmetic mean exceeds the compliance limit for the contaminant and there was Bypass Event(s) during the calendar month, then proceed to Step 2;
  - d. If the arithmetic mean does not exceed the compliance limit for the contaminant and there was Bypass Event(s) during the calendar month, the Owner may still elect to proceed to Step 2 calculation of the flow-weighted arithmetic mean.
- Step 2: Calculate the flow-weighted arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during a calendar month and proceed depending on the result of the calculation:
- a. Group No Bypass Days (**NBPD**) data and Bypass Days (**BPD**) data during a calendar month separately;
  - b. Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured on all NBPD during a calendar month and record it as **Monthly Average NBPD Effluent Concentration**;
  - c. Obtain the “**Total Monthly NBPD Flow**” which is the total amount of Final Effluent discharged on all NBPD during the calendar month;
  - d. Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured on all BPD during a calendar month

and record it as **Monthly Average BPD Effluent Concentration**;

- e. Obtain the “**Total Monthly BPD Flow**” which is the total amount of Final Effluent discharged on all BPD during the calendar month;
- f. Calculate the flow-weighted arithmetic mean using the following formula:

$$\frac{[(\text{Monthly Average NBPD Effluent Concentration} \times \text{Total Monthly NBPD Flow}) + (\text{Monthly Average BPD Effluent Concentration} \times \text{Total Monthly BPD Flow})]}{(\text{Total Monthly NBPD Flow} + \text{Total Monthly BPD Flow})}$$

It should be noted that in this method, if there are no Bypass Event for the month, the calculated result would be the same as the non-flow-weighted arithmetic mean method;

- g. Report and use the lesser of the flow-weighted arithmetic mean obtained in Step 2 and the arithmetic mean obtained in Step 1 as the Monthly Average Effluent Concentration for this parameter where applicable in this Approval.

## 2. Annual Average Effluent Concentration

Step 1: Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during a calendar year and proceed as follows depending on the result of the calculation:

- a. If the arithmetic mean does not exceed the compliance limit for the contaminant, then report and use this arithmetic mean as the Annual Average Effluent Concentration for this parameter where applicable in this Approval;
- b. If the arithmetic mean exceeds the compliance limit for the contaminant and there was no Bypass Event during the calendar year, then report and use this arithmetic mean as the Annual Average Effluent Concentration for this parameter where applicable in this Approval;
- c. If the arithmetic mean exceeds the compliance limit for the contaminant and there was Bypass Event(s) during the calendar year, then proceed to Step 2;
- d. If the arithmetic mean does not exceed the compliance limit for the contaminant and there was Bypass Event(s) during the calendar year, the Owner may still elect to proceed to Step 2 calculation of the flow-weighted arithmetic mean.

Step 2: Calculate the flow-weighted arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during a calendar year and proceed depending on the result of the calculation:

- a. Group No Bypass Days (**NBPD**) data and Bypass Days (**BPD**) data during a calendar year



separately;

- b. Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured on all NBPD during a calendar year and record it as **Annual Average NBPD Effluent Concentration**;
- c. Obtain the “**Total Annual NBPD Flow**” which is the total amount of Final Effluent discharged on all NBPD during the calendar year;
- d. Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured on all BPD during a calendar year and record it as **Annual Average BPD Effluent Concentration**;
- e. Obtain the “**Total Annual BPD Flow**” which is the total amount of Final Effluent discharged on all BPD during the calendar year;
- f. Calculate the flow-weighted arithmetic mean using the following formula:

$$\frac{[(\text{Annual Average NBPD Effluent Concentration} \times \text{Total Annual NBPD Flow}) + (\text{Annual Average BPD Effluent Concentration} \times \text{Total Annual BPD Flow})]}{(\text{Total Annual NBPD Flow} + \text{Total Annual BPD Flow})}$$

It should be noted that in this method, if there are no Bypass Event for the calendar year, the calculated result would be the same as the non-flow-weighted arithmetic mean method;

- g. Report and use the lesser of the flow-weighted arithmetic mean obtained in Step 2 and the arithmetic mean obtained in Step 1 as the Annual Average Effluent Concentration for this parameter where applicable in this Approval.

### 3. Monthly Geometric Mean Density

Geometric mean is defined as the  $n^{\text{th}}$  root of the product of  $n$  numbers. In the context of calculating Monthly Geometric Mean Density for *E. coli*, the following formula shall be used:

$$\sqrt[n]{x_1 x_2 x_3 \cdots x_n}$$

in which,

" $n$ " is the number of samples collected during the calendar month; and

" $x$ " is the value of each Single Sample Result.

For example, four weekly grab samples were collected and tested for *E. coli* during the calendar month. The *E. coli* densities in the Final Effluent were found below:

Sample Number	<i>E. coli</i> Densities* (CFU/100 mL)
1	10
2	100
3	300
4	50

The Geometric Mean Density for these data:

$$\sqrt[4]{10 \times 100 \times 300 \times 50} = 62$$

\*If a particular result is zero (0), then a value of one (1) will be substituted into the calculation of the Monthly Geometric Mean Density. If the MPN method is utilized for *E. coli* analysis, values in the table shall be MPN/100 mL.

*In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me, the Environmental Review Tribunal and in accordance with Section 47 of the Environmental Bill of Rights, 1993, the Minister of the Environment, Conservation and Parks, within 15 days after receipt of this Notice, require a hearing by the Tribunal. The Minister of the Environment, Conservation and Parks will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:*

- a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
- b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

*The Notice should also include:*

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

*And the Notice should be signed and dated by the appellant.*

*This Notice must be served upon:*

The Secretary\*  
Environmental Review Tribunal  
655 Bay Street, Suite 1500  
Toronto, Ontario  
M5G 1E5

AND

The Minister of the Environment,  
Conservation and Parks  
777 Bay Street, 5th Floor  
Toronto, Ontario  
M7A 2J3

AND

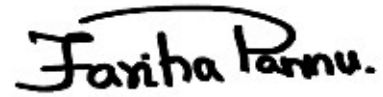
The Director appointed for the purposes of  
Part II.1 of the Environmental Protection Act  
Ministry of the Environment,  
Conservation and Parks  
135 St. Clair Avenue West, 1st Floor  
Toronto, Ontario  
M4V 1P5

**\* Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or [www.ert.gov.on.ca](http://www.ert.gov.on.ca)**

*This instrument is subject to Section 38 of the Environmental Bill of Rights, 1993, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at <https://ero.ontario.ca/>, you can determine when the leave to appeal period ends.*

*The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.*

DATED AT TORONTO this 4th day of December, 2020



---

Fariha Pannu, P.Eng.

Director

appointed for the purposes of Part II.1 of the  
*Environmental Protection Act*

SW/

c: District Manager, MECP Peterborough District Office  
John Levie, P.Eng., Clearford Water Systems Inc./Clearford ASI